THE IMPACT ON LAND VALUE OF A MAJOR HIGHWAY INTERCHANGE NEAR A METROPOLITAN AREA

DECEMBER 1973 – NUMBER 34

BY

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JHRP

JOINT HIGHWAY RESEARCH PROJECT
PURDUE UNIVERSITY AND
INDIANA STATE HIGHWAY COMMISSION

73-34

Interim Report

THE IMPACT ON LAND VALUE OF A MAJOR HIGHWAY INTERCHANGE NEAR A METROPOLITAN AREA

TO: J. F. McLaughlin, Director
Joint Highway Research Project

December 13, 1973

Project: C-36-64F

FROM: H. L. Michael, Associate Director
Joint Highway Research Project

File: 3-5-7

Attached is an Interim Report on an HPR Part II Study titled "Highway Impact Studies in Indiana". The Report is titled "The Impact on Land Value of a Major Highway Interchange Near a Metropolitan Area" and has been authored by Messrs. Fred Brown and Harold Michael of the JHRP Staff. The Report is the last Interim Report on this HPR Study whose financing terminated June 30, 1971, and will be followed by a Final Summary Report on this 10-year research study.

The lateness of this Interim Report resulted from a number of unexpected events which voided all plans for its earlier completion. Much of the data reported herein was collected in 1967 and 1968 and planned for reporting in 1969. The researcher working on the Study, however, developed emotional and mental problems and left the staff without completing the study. A second researcher then attempted to salvage the original data and collected more but he too left the University in 1971 before preparing an analysis and report. The two authors of the attached report then undertook to salvage the work and during the last two years without funding from the study and hence of necessity in spare time have reviewed the collected data, ascertained its accuracy, analyzed it and prepared the report.

The Report is about changes in land values and land use which occurred during the period 1960-1967 in the vicinity of the I-65-I-465 interchange at the northwest edge of Indianapolis. Land use as of 1973 in the study area is also included.

The Report is presented for the record and for acceptance as partial fulfillment of the objectives of this research study.

Respectfully submitted,

Harold L. Michael

Harold L. Michael, Associate Director

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TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.

4. Title and Subtitle
THE IMPACT ON LAND VALUE OF A MAJOR HIGHWAY INTERCHANGE NEAR A METROPOLITAN AREA

5. Report Date
December 1973

6. Performing Organization Code
C-36-64F

7. Author(s)
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8. Performing Organization Report No.
JHRP-33-73

9. Performing Organization Name and Address
Joint Highway Research Project
Civil Engineering Building
Purdue University
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10. Work Unit No.

11. Contract or Grant No.
HPR-1(8) Part II

12. Sponsoring Agency Name and Address
Indiana State Highway Commission
100 North Senate Avenue
Indianapolis, Indiana 46204

13. Type of Report and Period Covered
Interim Report
(Facility 6)

14. Sponsoring Agency Code
CA 384

15. Supplementary Notes
Conducted in cooperation with the U.S. Department of Transportation, Federal Highway Administration. Research Study titled "Highway Impact Studies"

16. Abstract

As one portion of a research project on highway impact studies in Indiana, the effect on land value of construction of the interchange between I-65 and I-465 at the northwest edge of Indianapolis was studied. Sale prices for the years 1960 through 1967 of property within one mile of the four adjacent service interchanges to this interchange were obtained. As location of the highway facilities had been announced during the period 1958-1962, before values of the property were assumed to be three times the 1960 assessed values.

Analysis of the data indicated that the highway improvement had significant impact on land value, with such impact being most often an increase. The amount of the increase was affected by nearness to an interchange, nearness to the city, completeness of the interchange, and strategic location of the property relative to its potential use as a commercial, motorist service land use.

17. Key Words	18. Distribution Statement
Highway Impact; Land Value; Urban Area Development; Land Value Impact; Land Use Impact	

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	54	

Form DOT F 1700.7 (8-69)

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THE IMPACT ON LAND VALUE OF A MAJOR HIGHWAY INTERCHANGE NEAR A METROPOLITAN AREA

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Project No.: C-36-64F

File No.: 3-5-7

Prepared as Part of an Investigation
Conducted by

Joint Highway Research Project
Engineering Experiment Station
Purdue University

in cooperation with the

Indiana State Highway Commission

and the

U.S. Department of Transportation
Federal Highway Administration

Purdue University
West Lafayette, Indiana
December 13, 1973

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ABSTRACT (HIGHLIGHT SUMMARY)

Brown, F. A. and Michael, H. L., "The Impact on Land Value of a Major Highway Interchange Near a Metropolitan Area", J.H.R.P. Number 34, December 1973.

As one portion of a research project on highway impact studies in Indiana, the effect on land value of construction of the interchange between I-65 and I-465 at the northwest edge of Indianapolis was studied. Sale prices for the years 1960 through 1967 of property within one mile of the four adjacent service interchanges to this interchange were obtained. As location of the highway facilities had been announced during the period 1958-1962, before values of the property were assumed to be three times the 1960 assessed values.

Analysis of the data indicated that the highway improvement had significant impact on land value, with such impact being most often an increase. The amount of the increase was affected by nearness to an interchange, nearness to the city, completeness of the interchange, and strategic location of the property relative to its potential use as a commercial, motorist service land use.

Land use changes in the area were found to be as yet (1973) few. The land value changes apparently resulted from speculation of future development which would result from the highway improvement.

A few case studies of property sales are also included.

INTRODUCTION

The transportation system of a country is one of the most important factors in a country's future economic progress. There has never been an advanced area that has not had the most advanced transportation system for its time. Without the transportation facilities as exist today, economic and social activities could be conducted in this country in only a limited and local way. But research into better transportation must continually be active for continued advancement to occur.

One of the basic components of the transportation system in this country is the vast network of highway facilities. Our most recent advancement in this area has been the Interstate System and other controlled-access facilities. While this type of highway has many benefits, little was known in the 1960's of the effect that these highways and other highway improvements had on the adjacent land.

To supply more information in this area, many states initiated research projects to determine the impact of highway improvements on adjacent areas. Some such studies in Indiana were conducted by the Joint Highway Research Project of Purdue University in cooperation with the State Highway Commission of Indiana and the Federal Highway Administration. This project was begun in 1960 and was planned over a period of ten years.

Six specific types of major highway improvements were chosen for inclusion in the study. These were:

Facility 1. An urban by-pass with complete control of access

Facility 2. A rural state primary highway with complete control of access

Facility 3. An urban by-pass with little or no control of access

Facility 4. A rural state primary highway with little or no control of access

Facility 5. A bridge and its approaches on a state route in an urban area

Facility 6. A major interstate highway interchange near a metropolitan area

The facilities corresponding to the types of improvements listed above are (see Figure 1):

Facility 1. The Interstate 65 by-pass around Lebanon, Indiana

Facility 2. A 13-mile portion of Interstate 65 from the south end of the Lebanon by-pass southeastwardly to the interchange with Interstate 465 northwest of Indianapolis, Indiana

Facility 3. The U.S. 31 by-pass around Kokomo, Indiana

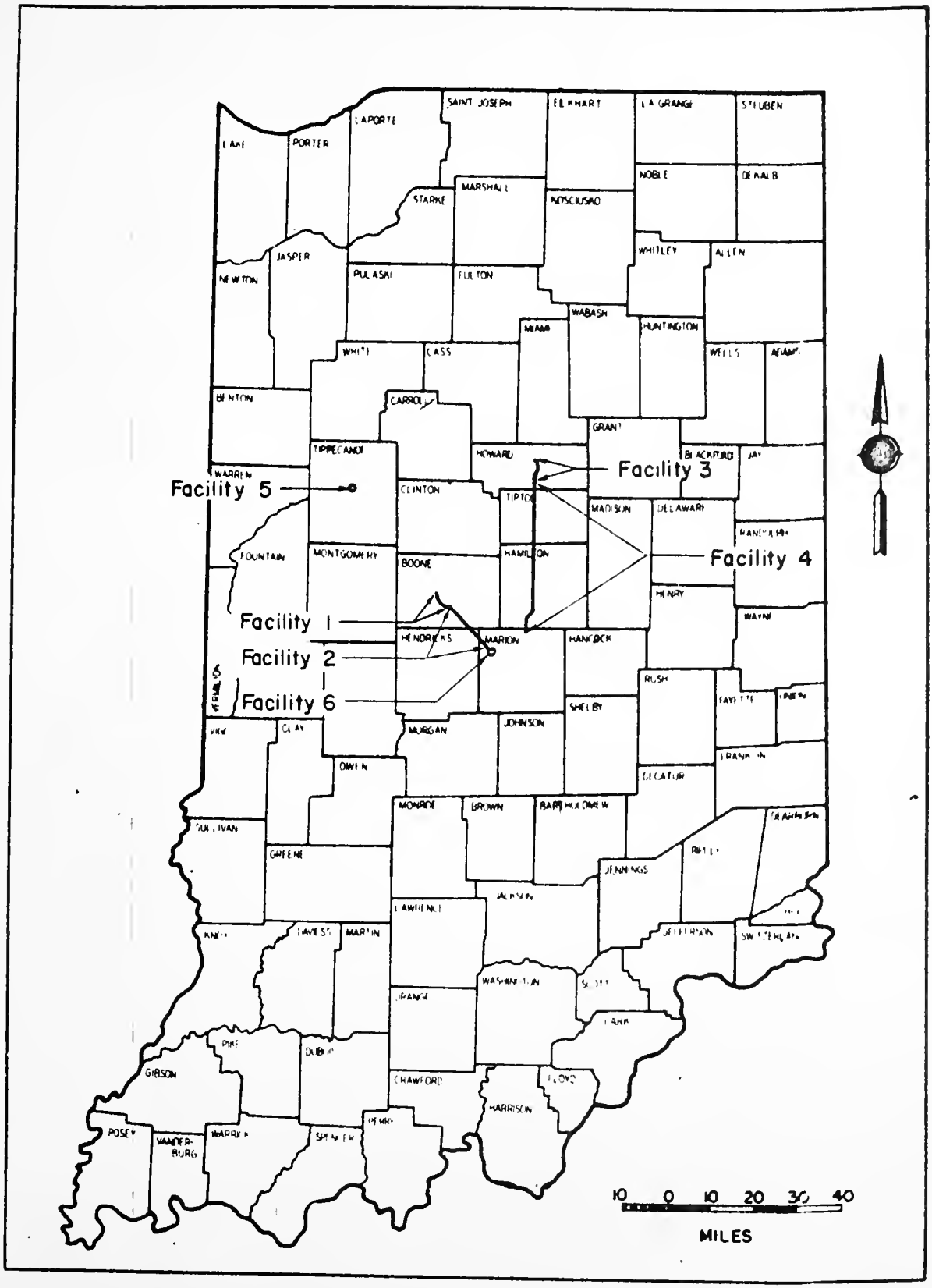
Facility 4. U.S. 31 from the south end of the Kokomo by-pass to the north edge of Marion County, Indiana

Facility 5. The U.S. 231 bridge over the Wabash River connecting Lafayette and West Lafayette, Indiana

Facility 6. The interchange connecting Interstate 65 and Interstate 465 northwest of Indianapolis, Indiana

A study of facility 2 was conducted and submitted in June, 1961 (1). Two reports on facility 5 were completed in May, 1962 and May, 1968 (2,3). In October, 1964, a report was submitted on facility 1 (4), and in August, 1965, a report was submitted on facility 3 (6).

This report covers studies of facility 6 made during the period 1964-1967 with observations made in 1968-69 and 1972-73. The study is of the impact on land use and land value of the highway improvement of interest (Facility 6).



LOCATION OF FACILITIES

Figure 1

THE STUDY AREA

The City of Indianapolis

The city of Indianapolis, Indiana, has been the state capital since 1820. Indianapolis was not a major city though until the 1880's when it became a major regional market center due to the construction of seven separate railway systems which radiated from it.

As seen in Figure 2, Indianapolis is located in the center of the state. The city encompasses most of Marion County. Seven Interstate freeways converge on Indianapolis and provide a degree of access to the rest of the national highway network greater than any other city in the country. These Interstates connect Indianapolis directly with Chicago, Illinois; Louisville, Kentucky; and Cincinnati, Ohio.

The population of Indianapolis is approximately 750,000. There has been continuous growth and it is projected that the population will be 1,000,000 by 1985.

Delimitation of the Study Area

The interchange connecting Interstate 65 and Interstate 465 was chosen as the specific facility to be studied for this type of highway improvement. As can be seen in the more detailed map, Figure 3, this interchange is northwest of Indianapolis. This interchange has no access to local roads and would have little if any positive effect on the local land values. But the four interchanges adjacent to it do provide access to surrounding property and were included in the study area. These interchanges were labeled A, B, C, and D as shown in Figure 3.

The public hearings for the exact location of Interchanges A, B, and C were held in 1958. Thus all sales of property after 1958 might be considered to be indicative of possible after effects for these interchanges. The public hearings for Interchange D were held in 1962. It should also be noted that this interchange had not been completed during

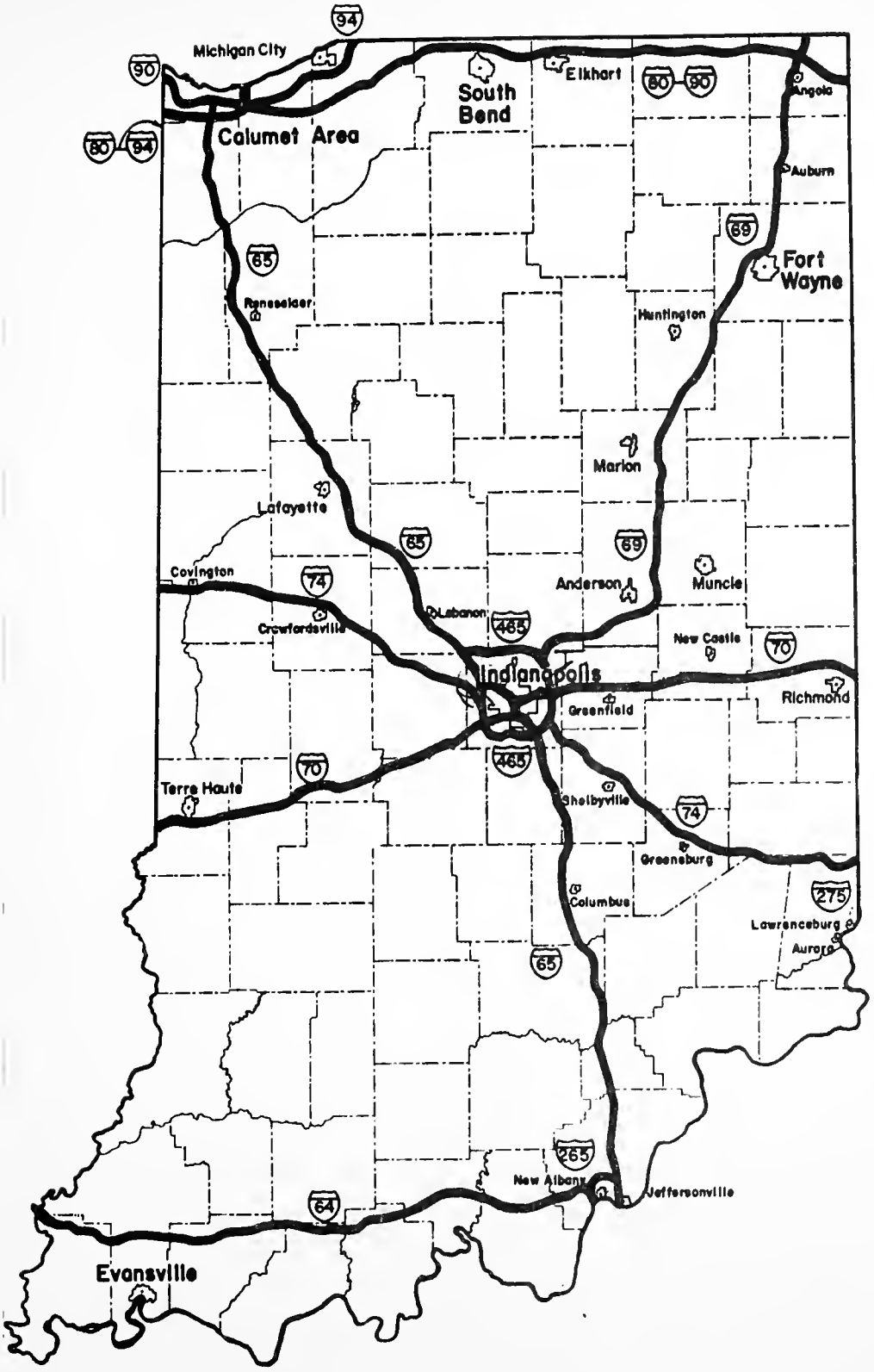
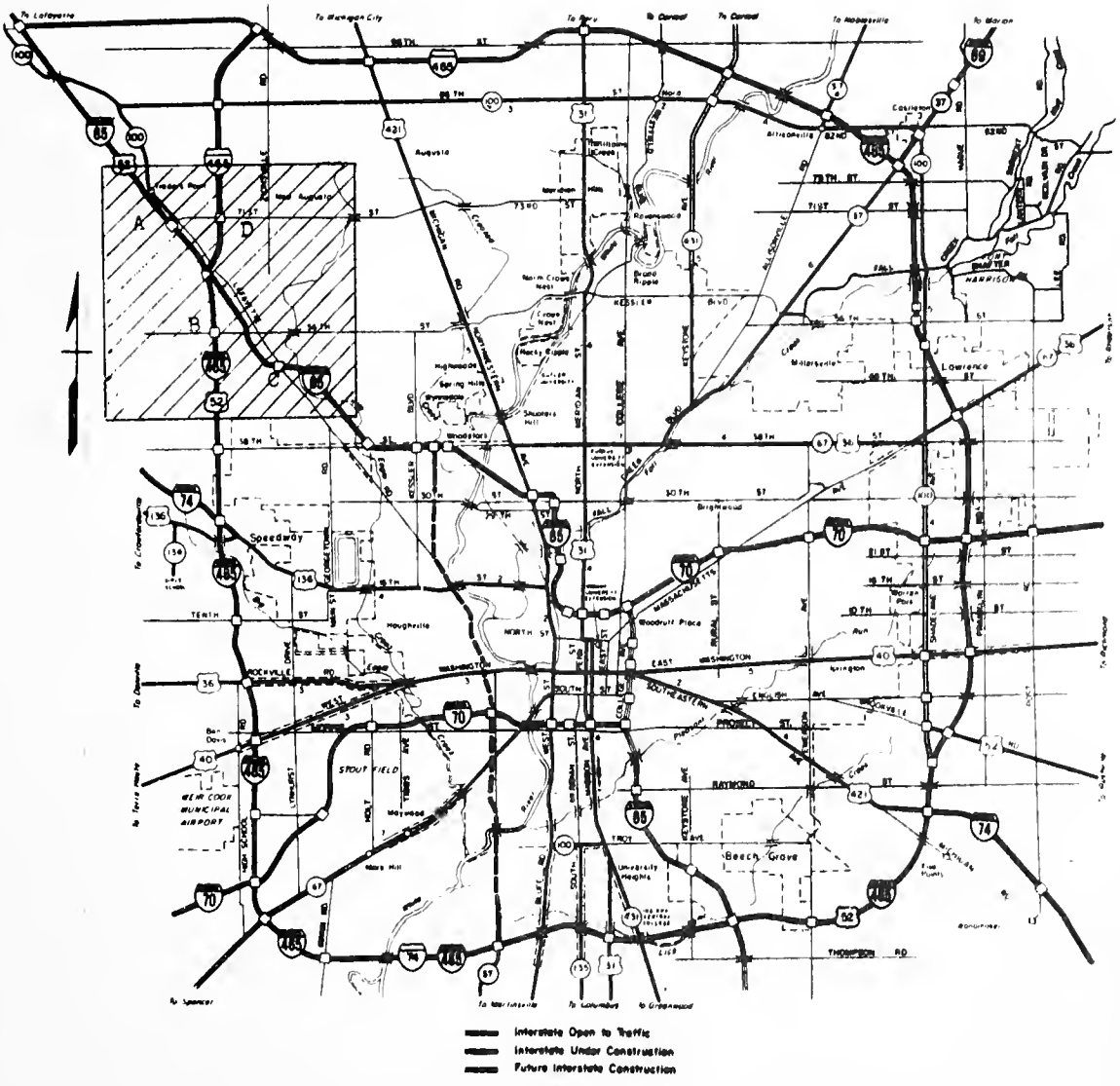


FIGURE 2 - INTERSTATE HIGHWAYS IN INDIANA



INDIANAPOLIS

FIGURE 3 - LOCATION OF STUDY AREA

the collection of the data reported herein but it was under construction and was opened to traffic the following year.

The area of maximum effect of an interchange has been shown to be within one mile of the interchange (4). This value, therefore, was used in delimiting the study area - all area within approximately one mile of interchanges A, B, C, and D was included. Sales of property, however, are recorded according to their township, range, section, and parcel number. For ease of compilation it was decided to include all of the land of any section which was within one mile of the four interchanges.

By this criteria, the study area was delimited to Sections 25, 26, 27, 28, 33, 34, 35, and 36 of Township 17 Range 2; Sections 1, 2, 11, 12, and 13 of Township 16 Range 2; and Sections 6, 7, and 18 of Township 16 Range 3.

COLLECTION OF DATA

All information concerning property sales was obtained from the Marion County Auditors Office. Each parcel sale was recorded on a separate form. Each form included information concerning parcel number, section number, acreage, date of sale, buyer, seller, and the amount of the Warranty Deed Stamps. It has been shown by J. A. Fletcher (1) that the amount of stamps affixed to deeds accurately indicates the selling price.

The assessed value of the parcels was also obtained from the Pike Township Assessors Office. These values were also recorded on the forms.

Base maps for the study area were obtained from the Marion County Metropolitan Planning Department. These maps were put together and the location of the individual parcel sales were marked. This completed map is shown in Figure 4. From the map the distance of the individual parcels to the interchanges was computed and this information placed on the forms.

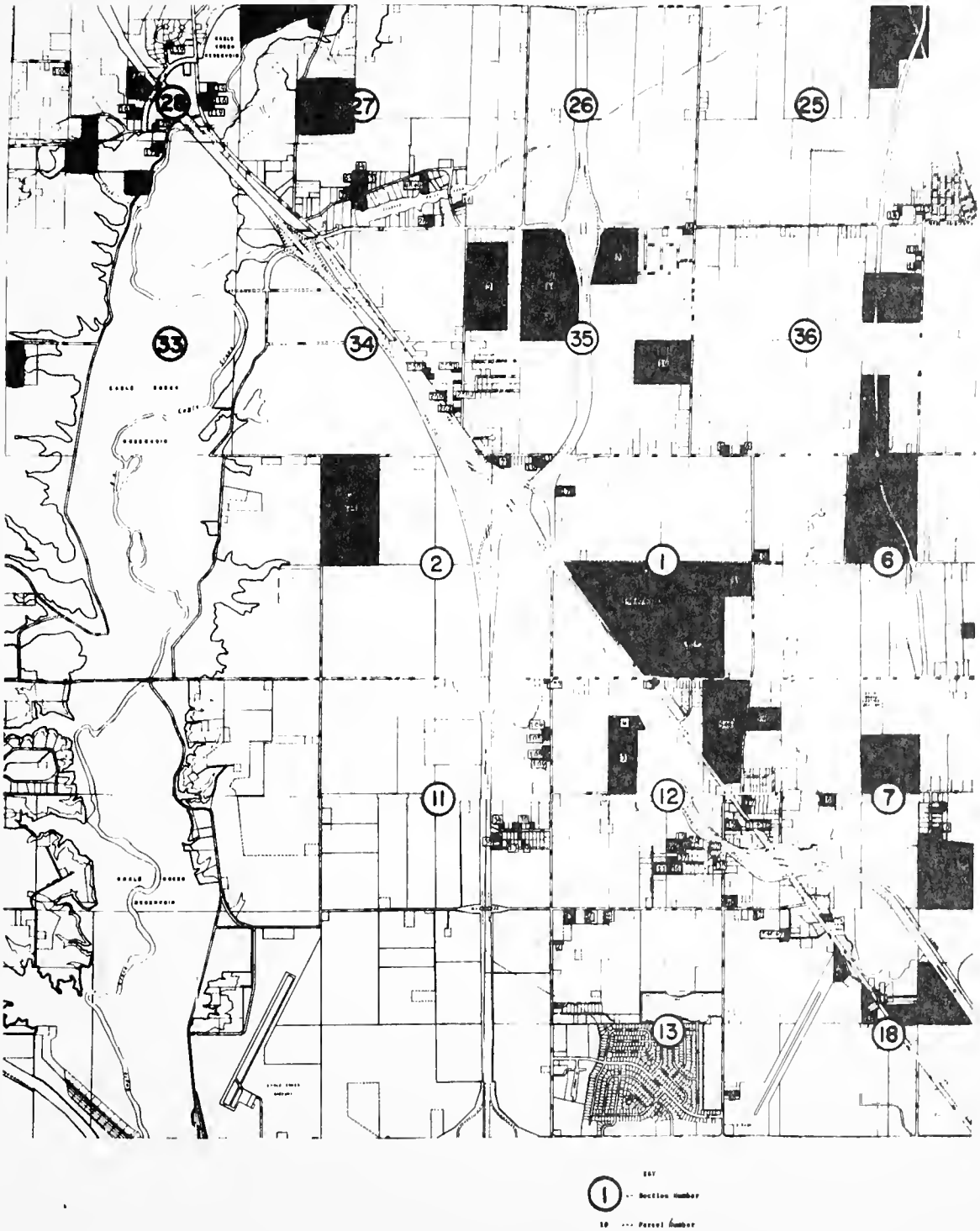


FIGURE 4 - LOCATION OF PARCEL SALES IN STUDY AREA

ANALYSIS OF DATA

Land Value

The topography of the land which makes up the study area varies a great deal. The land around Eagle Creek Resevoir and Interchange A is very hilly and wooded while the land around Interchange C is relatively flat. These differences in topography cause a difference in land value and possibly in future land value changes and made questionable the selection of any distant land area as a control zone.

It was decided to use the assessed value of a parcel as the "before" value of the property and improvement. Since assessments in Indiana are one-third of the true value, the figures recorded from the assessors office were multiplied by three. It was realized that these assessed values are usually a conservative estimate of the actual value, but since all parcels are assessed equitably, trends of land value change could still be made.

In determining the sale land value, one other assumption had to be made. The sale price that was recorded was for the land and any improvements on the land. Where the land was unimproved, there were no problems. But where improvements existed, there was a question of how much of the sale price was for the land and how much was for the improvement. Inasmuch as effects of the highway improvement would most often be entirely on the land, it was decided to use the assessed improvement value as the sale value of the improvement. Thus the sale land value was the sale price minus the assessed improvement value.

The assessed and sale land values in dollars per acre were obtained by dividing the pertinent land value by the number of acres of the particular parcel. The land value change for each parcel was thus the difference between the sale and assessed land values in dollars per acre. These

values for each of the parcels, along with the information from the forms, are tabulated by section numbers in Appendix A. A plot of the change in land value vs. distance from the interchange is shown in Figure 5.

As can be seen there is a scatter of the land value changes. The reason for many of the losses in land value is the effect on residential homes that in the after period were bordered by one of the Interstates. The nuisance effect of the Interstate has reduced the value of the property and of the improvement. This devaluation was not so large in actual dollar value per case, but as the loss was entirely assigned to the land (as noted above) and when the loss was divided by the acreage, which was almost always less than one acre, some land value loss per acre was substantial.

The very large increases in land value change per acre were due to two main causes. The five large increases at a distance of 3600 feet were from sales within a new subdivision. While assessed values were high, approximately $4,000 per acre, the selling price was much higher. Most of the other very large increases were due to property purchases by oil companies who paid large sums of money for small parcels of land that were strategically located near an interchange. Resulting increases of land value were as high as $33,950 per acre.

A more detailed description of several of these large increases and decreases of land value is found in Appendix B.

The parcels were also grouped in bands according to distance from the nearest interchange. The first four bands were in quarter-mile increments from an interchange (0-1/4, 1/4-1/2, 1/2-3/4, and 3/4-1) and the fifth band included all those properties greater than one mile away.

Then for each band, the total assessed and sale values of all the parcels were added. These totals were then divided by the total acreage of all of the parcels in that band. The difference between these two numbers was the land value change for the band. It was found later that large

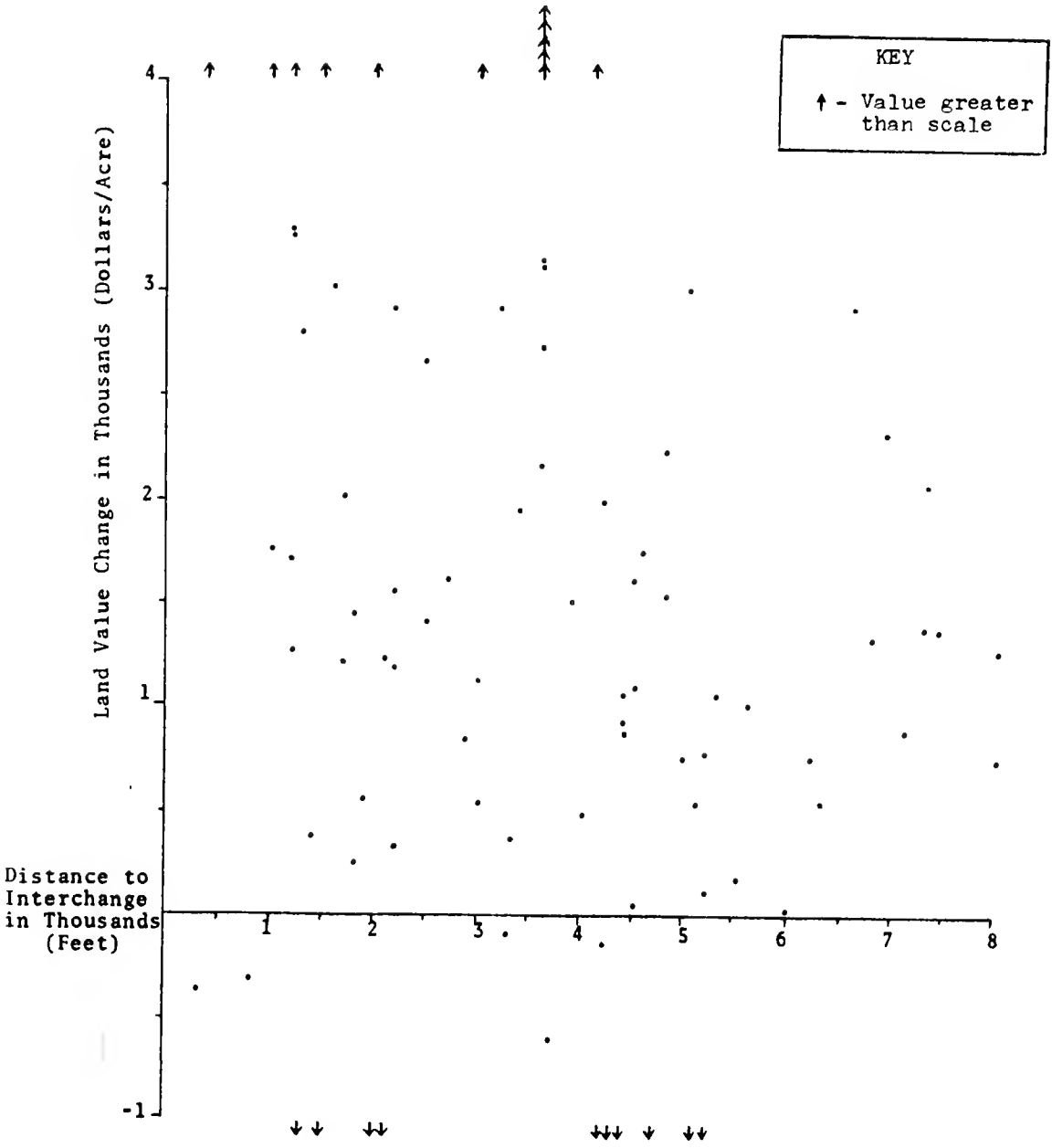


FIGURE 5 - LAND VALUE CHANGE vs. DISTANCE TO INTERCHANGE

parcels averaged lower land value changes per acre than small parcels. As there were more small parcels this procedure gave lower land value changes per acre than if it had been analyzed on a parcel basis.

Table 1 shows a summary of the land value change for the four interchanges while Tables 2, 3, 4, and 5 are for changes at Interchanges A, B, C, and D respectively. As can be seen, the land value change decreases with distance from the interchange up to one mile and then increases. Although the reason for this increase beyond one mile is not clear, two factors appear to be contributing. At that distance from one interchange, some land becomes similarly located relative to another interchange and several large plots of land beyond one mile appear to have been purchased for development as subdivisions.

Table 6 shows a comparison of the totals for each of the interchanges and the average of all four. The reason for Interchange C having the second largest increase is probably because it is the closest to the metropolitan center and will be the first affected by growth of the city. Interchange A is the farthest away and has the smallest increase. Another factor which is affecting land value changes around A is the Eagle Creek Reservoir. Most of the prime land around this interchange is either part of the Reservoir or has already been developed as a residential area.

The land value change around Interchange B is the second lowest. There are two reasons for this. First it is farther away from the city center and growth has not reached it yet. But more important is the fact that it is not a complete interchange. As can be seen in Figure 4, vehicles may enter only onto the south-bound lane of Interstate 465 and only vehicles traveling in the north-bound lane of Interstate 465 may exit. Thus the big advantage of increased accessibility of an interchange has been greatly reduced and land values have not changed very much. This interchange is so close to

	Acres	Assessed Land Price Per Acre	Sale Land Price Per Acre	Land Value Change
Band 1	133.53	564.83	2310.02	1745.19
Band 2	103.02	985.15	2408.56	1423.41
Band 3	396.88	568.96	1751.39	1182.43
Band 4	318.44	450.04	965.03	514.99
Band 5	182.70	469.62	1462.68	993.05
All Bands	1134.57	556.89	1609.61	1052.72

TABLE 1 - LAND VALUE CHANGES FOR ALL INTERCHANGES

	Acres	Assessed Land Price Per Acre	Sale Land Price Per Acre	Land Value Change
Band 1	0.00	0.00	0.00	0.00
Band 2	7.87	3529.86	4367.22	837.36
Band 3	49.97	432.86	780.47	347.61
Band 4	54.69	694.42	987.88	293.46
Band 5	27.92	596.35	1418.70	822.35
All Bands	140.45	740.75	1189.08	448.34

TABLE 2 - LAND VALUE CHANGES FOR INTERCHANGE A

	Acres	Assessed Land Price Per Acre	Sale Land Price Per Acre	Land Value Change
Band 1	1.92	1781.25	8958.33	7177.08
Band 2	1.14	3105.26	3508.77	403.51
Band 3	200.46	447.61	1416.92	969.31
Band 4	160.41	317.94	897.08	579.14
Band 5	7.64	1166.23	1684.55	518.32
All Bands	371.57	421.45	1243.39	821.94

TABLE 3 - LAND VALUE CHANGES FOR INTERCHANGE B

	Acres	Assessed Land Price Per Acre	Sale Land Price Per Acre	Land Value Change
Band 1	11.61	2434.74	8184.72	5749.98
Band 2	34.43	1205.93	2964.28	1758.35
Band 3	106.45	929.71	2623.34	1693.63
Band 4	100.87	470.21	994.45	524.24
Band 5	103.41	407.31	1365.31	957.74
All Bands	356.77	724.01	2011.97	1287.96

TABLE 4 - LAND VALUE CHANGES FOR INTERCHANGE C

	Acres	Assessed Land Price Per Acre	Sale Land Price Per Acre	Land Value Change
Band 1	120.00	364.50	1635.42	1270.92
Band 2	59.58	480.87	1807.65	1326.79
Band 3	40.00	387.00	2320.00	1933.00
Band 4	2.46	2800.32	3677.76	877.44
Band 5	43.73	414.37	1682.86	1268.49
All Bands	256.77	424.73	1803.77	1379.04

TABLE 5 - LAND VALUE CHANGES FOR INTERCHANGE D

	Acres	Assessed Land Price Per Acre	Sale Land Price Per Acre	Land Value Change
Interchange A	140.45	$ 740.75	$ 1189.08	$ 448.34
Interchange B	371.57	$ 421.45	$ 1243.39	$ 821.94
Interchange C	356.77	$ 724.01	$ 2011.97	$ 1287.94
Interchange D	265.77	$ 424.73	$ 1803.77	$ 1379.04
All Interchanges	1134.57	$ 556.89	$ 1609.61	$ 1052.72

TABLE 6 - COMPARISON OF LAND VALUE CHANGES BY INTERSECTIONS

the main interchange of Interstate 65 and Interstate 465 that the other access and egress ramps cannot be built. There is another interchange two miles south which serves all directions.

As has been mentioned, Interchange D was not completed at the time of the original data collection. Yet this interchange had the largest increase in land values. In analyzing the individual sales in this area, it is evident that the large land value increase is due primarily to speculative buying. An example of this can be seen in Case Study 3 of Appendix B.

For all of the interchanges it is clear that the location of the interchange has increased the land value over that which would be expected from inflation. This statement can be made even though the assessed land values were used as the "before" land values. The increases in land value are so large in comparison to the assessed land values that some change must be due to the highway facility rather than underestimated assessments or inflation.

The effect of parcel size on land value changes was also investigated. The parcels were broken down into four groups: those of less than five acres, those of greater than five acres but less than fifteen acres, those of greater than fifteen acres but less than twenty-five acres, and those of greater than twenty-five acres. The total sale and assessed land values of all of the parcels in each group were added. These values were divided by the total number of acres in the group to get the sale and assessed land value in dollars per acre. Again the difference between these two figures was the land value change. The results of this procedure are shown in Table 7.

Table 7 shows that the smaller parcels averaged higher land value changes per acre than the larger parcels. The parcels in the group of less than five acres also showed the most variance. While the parcels bought by oil companies tended to have very large increases, the nuisance effect of the Interstate tended to decrease the value of some small residential parcels.

	Acres	Assessed Land Price Per Acre	Sale Land Price Per Acre	Land Value Change
Less Than 5.0	88.82	$ 2095.86	$ 4237.00	$ 2141.14
Less Than 15.0 But Greater Than 5.0	89.08	$ 766.50	$ 2033.34	$ 1266.84
Less Than 25.0 But Greater Than 15.0	0.00			
Greater Than 25.0	956.67	$ 394.17	$ 1326.22	$ 932.05

TABLE 7 - COMPARISON OF LAND VALUE CHANGES BY SIZE OF PARCEL

A similar method of analysis was used to see if there were any trends in sales and value changes by years. The parcel sales were grouped by individual years except for those before 1960. As Table 8 shows, there does not seem to be any particular trend. It is evident, however, that metropolitan growth is starting to reach the study area. The large number of acres that have been sold during the last few years of the study indicates growing interest in development in the study area. The reason for the loss in land value of the parcels sold before 1960 is that one parcel sold for over $10,000 below its assessed value. This parcel, however, should not have been seriously affected by the Interstate and the explanation for the decrease is not known.

An analysis was also made to see if there was any effect on land values of land that is served by two interchanges. From the geometrics of the intersecting Interstates, the area that was so studied are those parcels located between Interchanges A and D and those located between Interchanges B and C. The same method of analysis was again used and the results are tabulated in Table 9. The results show that the land served by two interchanges had a lower land value increase than the average increase for the study area. It may be expected that the increased accessibility of this land (two interchanges) would increase the land value, but if it has, the effect is overshadowed by larger increases resulting from nearness of other acreage to the city. The tracts between Interchanges B and C did have a larger increase than those properties between Interchanges A and D. This too is probably due to the proximity of the city and resulting growth.

Land Use

At the time the data were collected, there were very few changes in land use. One bottling company had purchased the land marked Parcel 5+6 in Section 12 of Figure 4. This property has good accessibility to both Interchanges B and C. But no plant has as yet been built.

	Acres	Assessed Land Price Per Acre	Sale Land Price Per Acre	Land Value Change
1967	138.36	$ 553.34	$ 2009.57	$ 1456.23
1966	381.01	$ 420.30	$ 1708.21	$ 1287.91
1965	19.16	$ 1671.34	$ 2993.87	$ 1322.53
1964	481.63	$ 571.51	$ 1397.39	$ 825.88
1963	22.00	$ 1494.62	$ 3783.25	$ 2288.63
1962	1.31	$ 3514.55	$ 4418.07	$ 903.52
1961	13.07	$ 1807.45	$ 4526.82	$ 2719.37
1960	0.00			
Before 1960	78.03	$ 342.95	$ 239.91	$ -103.04

TABLE 8 - COMPARISON OF LAND VALUE CHANGES BY YEARS

	Acres	Assessed Land Price Per Acre	Sale Land Price Per Acre	Land Value Change
Land Between A&D & B&C	728.97	$ 519.86	$ 1406.35	$ 886.49
Land Between A&D	437.74	$ 445.19	$ 1255.76	$ 810.57
Land Between B&C	291.22	$ 632.09	$ 1632.70	$ 1000.61
For All Land	1134.57	$ 556.89	$ 1609.61	$ 1052.72

TABLE 9 - COMPARISON OF LAND VALUE CHANGES FOR LAND SERVED BY TWO INTERCHANGES

There are only two types of land use changes that have occurred. Four new service stations have been built as a result of the construction of these interchanges. Two service stations have been built near both Interchanges B and C. A small subdivision has also been built about one-half mile south of Interchange B.

There have been several large parcels of land bought by either banks or individuals probably on speculation for future development. Little development, however, has as yet occurred and probably will not for several years due to expected growth in this area. Figure 6 shows that most of the growth of Indianapolis is to the north. The projected growth pattern for this study area as shown in Figure 6, from the Metropolitan Planning Authority, indicates that a large number of land use changes may not occur for several more years.

SUMMARY OF RESULTS

A summary of the major results of this study is as follows:

1. The analysis of land value changes shows that an impact of this major facility interchange and its adjacent interchanges has been an increase in land values with the amount of increase decreasing with distance from an interchange. The interchanges closest to the city center had the largest increases in land value.
2. One interchange which did not have complete access and egress facilities appeared to have lesser land value increases than it would have had if it had been a complete interchange.
3. Land parcels of less than five acres averaged higher land value increases per acre than larger parcels but also had much greater variance of land value change.

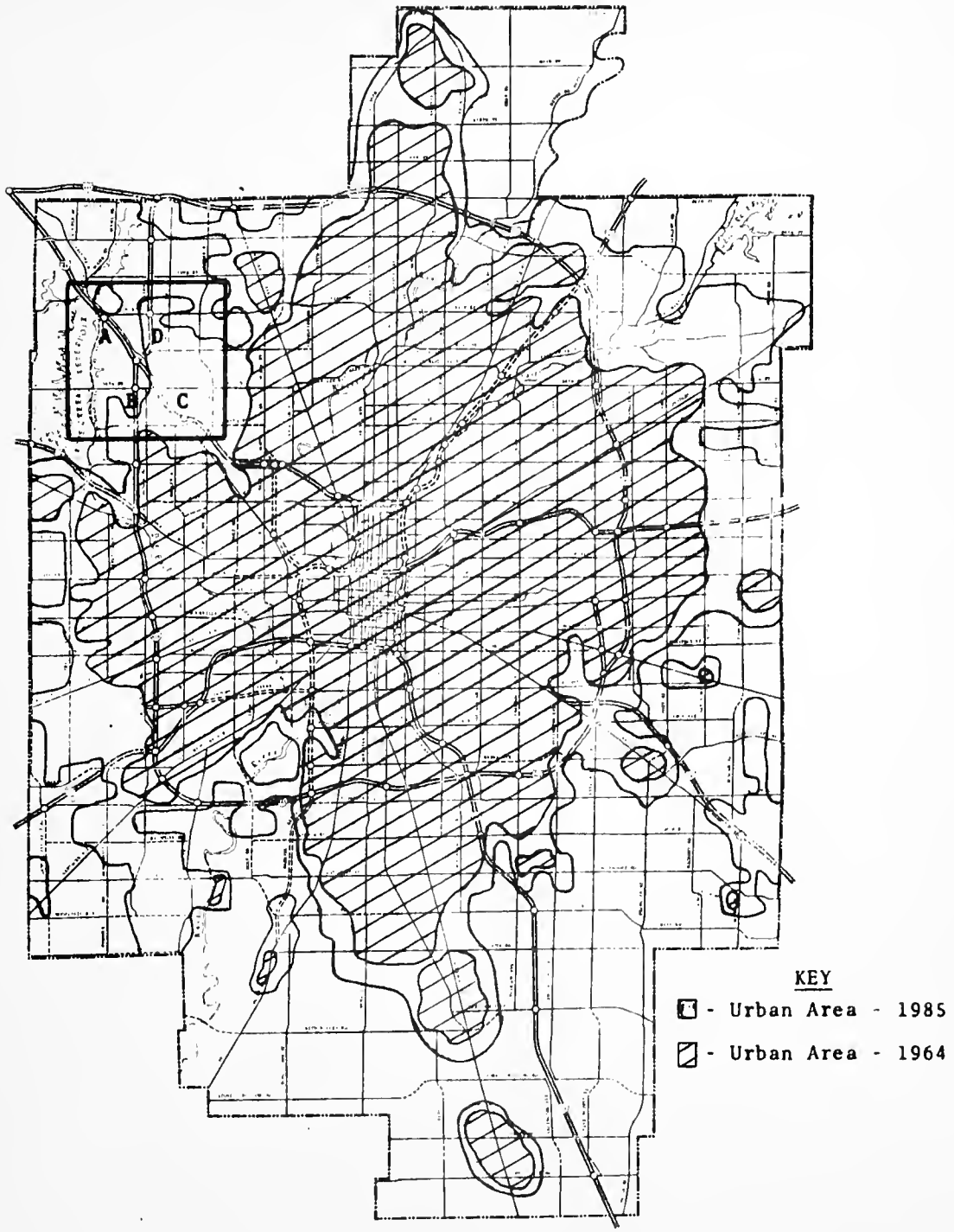


FIGURE 6 - URBAN GROWTH PATTERNS

4. There was no apparent extra increase in land value for those parcels which had good access to two interchanges.
5. Because the major growth of Indianapolis has not as yet reached the study area, there has been very little actual land use change in the interchange area. It is apparent, however, that speculation of such development in the future has resulted in land sales within the area and in increases in land value.

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APPENDIX A - COLLECTED DATA

Section 1

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
18	1959	3.00		3000.00	16740.00		25500.00		
1+2+3	1964	56.48	B - 3900 C - 5000	22590.00	8100.00	399.96	115500.00	1901.56	1501.59
5+6+7+8	1964	125.42	B - 3300 C - 6500	45570.00	9690.00	363.64	99000.00	712.09	348.75
10	1964	4.00	B - 6300 C - 6400	4620.00	3240.00	1155.00	10000.00	1690.00	535.00
17	1961	3.00	B - 4400 D - 5800	2400.00	18870.00	800.00	24000.00	1710.00	910.00
19	1964	1.85	B - 6000 C - 6500	3150.00	9390.00	1702.70	12500.00	1681.08	-21.62

Section 2

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
4+5	1966	76.75	A - 5500 B - 4500	22560.00	0.00	293.94	107450.00	1400.00	1106.06
11	1965	1.79	B - 5300 D - 5700	1140.00	7500.00	636.87	10500.00	1675.98	1039.11
7	1965	2.96	B - 5000 D - 5200	1890.00	0.00	638.51	4000.00	1351.35	712.85
10	1963	.95	B - 5200 D - 5200	1590.00	9180.00	1673.68	11500.00	2442.11	768.42
4+5	1954	76.75	A - 5500 B - 4500	22 0.00	0.00	293.94	25000.00	325.73	31.79
8	1957	.95			0.00		2000.00	2105.26	
9	1957	.95		1590.00	0.00	1652.61	2000.00	2105.26	453.65

Section 6

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
7	1960	20.00		6960.00	16110.00	348.00	36500.00	1020.00	672.00
3	1964	91.80	C - 8000	39150.00	7590.00	426.47	115000.00	1170.04	743.57
8	1966	10.54	C - 6600	900.00	0.00	85.39	31500.00	2988.61	2903.23

Section 7

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
4	1967	40.00	C- 3200	17700.00	9300.00	442.50	143500.00	3355.00	2912.50
5	1964	45.22	C- 4000	15840.00	0.00	350.29	37270.00	824.19	473.91
6	1964	5.22	C- 1400	15000.00	24150.00	2873.56	41000.00	3227.97	354.41
8	1965	.96	C- 3300	3090.00	0.00	3232.22	3000.00	3138.08	-94.14
10	1962	.96	C- 3700	3090.00	0.00	3232.22	2500.00	2615.06	-617.15

Section 11

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
102	1954	20.00		7920.00	11700.00	396.00	16075.00	218.75	-177.25
112	1960	16.46					8500.00		
2				1770.00	12630.00		18500.00		
6	1960						9000.00		
7	1960			1500.00	17040.00		14000.00		
103	1963	.78	B - 400	240.00	0.00	307.69	13200.00	16923.08	16615.38
104	1964	.57	B - 800	1680.00	0.00	2947.37	1500.00	2631.58	-315.79
105	1965	.57	B - 1000	1500.00	0.00	2631.58	2500.00	4385.96	1754.39
107	1966	.57	B - 1700				1000.00	1754.39	
108	1965	.57	B - 1800	1860.00	0.00	3263.16	2000.00	3508.77	245.61

Section 11

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
109	1964	.57	B - 1900	1680.00	0.00	2947.37	2000.00	3508.77	561.40
113	1964	6.48	B - 2600		0.00		1000.00	154.36	
40	1966	.45	B - 3600 C - 5600	1500.00			18000.00		
39	1966	.45	B - 3600 C - 5600	1500.00			19000.00		
9	1961	.35	B - 3600 C - 5600	1500.00	0.00	4285.71	7000.00	20000.00	15715.29
13	1963	.35	B - 3600 C - 5600	1260.00	0.00	3600.00	7000.00	20000.00	16400.00
19	1962	.35	B - 3600 C - 5600	1500.00	11730.00	4285.71	15000.00	9342.86	5067.15
27	1966	.35	B - 3600 C - 5600				5000.00		
30	1964	.35	B - 3600 C - 5600	1410.00	0.00	4028.57	2500.00	7142.86	3114.29
31	1964	.35	B - 3600 C - 5600	1410.00	0.00	4028.57	2500.00	7142.86	3114.29

Section 11

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
34	1961	.40	B - 3600 C - 5600	1680.00	0.00	4200.00	5000.00	12500.00	8300.00
34	1964	.40	B - 3600 C - 5600	1680,00	12150.00	4200.00	16500.00	10875.00	6675.00
38	1966	.45	B - 3600 C - 5600	1740.00	13290.00	3866.67	16000.00	6022.22	2155.56

Section 12

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
13	1959	.85		2550.00	11710.00		12400.00		
16	1958	1.76		6110.00			14500.00		
31+32	1964	2.99	C - 300	4770.00	6330.00	1595.32	10000.00	1227.42	-367.89
3	1964	9.58	C - 2100 B - 5000	2850.00	0.00	297.49	14500.00	1513.57	1216.08
4	1964	5.26	B - 2700 C - 4800	1590.00	0.00	302.28	10000.00	1901.14	1598.86
5+6	1964	58.88	C - 2900 B - 4800	60900.00	0.00	1034.31	110000.00	1868.21	833.90
7+8	1964	5.76	C - 3000 B - 5600	4740.00			26000.00		
9	1965	4.24	C - 2100 B - 5200	4290.00	0.00	1011.79	30000.00	7075.47	6063.68
10	1961	.72	B - 3000 C - 4500	4950.00	0.00	6848.47	29500.00	40802.21	33955.74
11	1967	4.00	C - 2500 B - 5300	3090.00	16740.00	772.50	30500.00	3440.00	2667.50

Section 12

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
19	1967	2.37	C - 2200 B - 5400	2760.00	13380.00	1164.56	23000.00	4059.07	2894.51
20	1967	.52	C - 2100 B - 5600	2190.00	13890.00	4211.54	12000.00	-3634.62	-7846.15
	1964	9.58	C - 2100 B - 5000	2850.00	0.00	297.49	14500.00	1409.19	1111.69
22	1966	.48	C - 1500	2520.00	7740.00	5250.00	8000.00	541.67	-4708.33
27	1963	1.98	C - 1200	7530.00	12330.00	3803.03	16500.00	2106.06	-1696.97
35	1963	2.67	C - 1000	4290.00	0.00	1606.74	40000.00	14981.27	13374.53
36	1967	4.00	C - 2200	3090.00	16740.00	772.50	26000.00	2315.00	1542.50
37	1967	1.02	C - 2200	1680.00	9000.00	1647.06	11000.00	1960.78	313.73
38	1966	.48	C - 1300	2160.00	0.00	4500.00	3500.00	7291.67	2791.67
40	1967	3.00	C - 1700	4050.00	10800.00	1350.00	18500.00	2566.67	1216.67

Section 13

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
2	1965	1.07	C - 5500 B - 6200	2070.00	9750.00	1934.58	12000.00	2102.80	168.22
3	1965	2.20	C - 5200 B - 5500	3960.00	10170.00	1800.00	9500.00	-304.55	-2104.55
4	1963	1.05	C - 4400 B - 5700	2670.00	10830.00	2542.86	11500.00	638.10	-1904.76
6	1964	1.00	C - 4800 B - 5600	1800.00	5670.00	1800.00	9000.00	3330.00	1530.00
7	1964	.89	C - 1200	2400.00	8190.00	2705.75	13500.00	5986.47	3280.72
8	1964	.92	C - 5120				16150.00		

Section 18

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
9	1960	4.14	C - 2000				21000.00		
4	1964	43.60	C - 4400	11850.00	4410.00	271.79	54000.00	1137.39	865.60
5+6+7	1965	1.50	C - 1300	3540.00	7980.00	2360.00	7500.00	-320.00	-2680.00
8	1964	1.10	C - 1200	3570.00	8670.00	3245.45	47500.00	35300.00	32054.55
9	1966	4.14	C - 2000				26500.00		
10	1966	5.66	C - 3600	14190.00	25440.00	2507.07	55000.00	5222.61	2715.55
11	1964	.78	C - 3500				1600.00		
13	1961	7.80	C - 4200	11310.00	30630.00	1450.00	40750.00	1297.44	-152.56

Section 25

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
1+2	1967	41.38	D - 8000	11880.00	6420.00	287.10	70500.00	1548.57	1261.48
14	1967	.48	D - 6900	1470.00	0.00	3062.50	2500.00	5208.33	2145.83
15	1967	.18	D - 7300	420.00	210.00	2333.33	1000.00	4388.89	2055.55
3	1958	20.00		11790.00	2010.00	589.50	11000.00	449.50	-140.00

Section 26

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
2	1957	10.37					8000.00		

Section 27

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
16	1964	.92	D - 2200 A - 3600	2910.00	0.00	3163.04	4000.00	4347.83	1184.78
28	1965	1.15	A - 2800 D - 2850				5500.00		
38	1966	1.70	A - 1500 D - 4500	7860.00	24150.00	4623.53	39500.00	9029.41	4405.88
48+49	1964	2.05	A - 3000 D - 3100	7860.00	0.00	3834.15	9000.00	4390.24	556.10
63	1967	1.28	A - 1900 D - 4400	4200.00	24480.00	3281.25	26500.00	4859.38	1578.12
64	1965	1.28	A - 1800 D - 4500	3660.00	0.00	2859.38	5500.00	4296.88	1437.50
65	1965	1.28	A - 1700 D - 4700	2940.00	0.00	2296.88	5500.00	4296.88	2000.00
71	1964	1.05	A - 1600 D - 4800	4920.00	7920.00	4685.71	16000.00	7695.24	3009.52
98	1967	35.60	A - 5200 D - 5800	12390.00	0.00	348.03	16000.00	449.44	101.40
63	1958	1.28	A - 1900 D - 4400	4200.00	20100.00	3281.25	14000.00	-4906.25	-8187.50

Section 27

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
104	1966	47.92	A - 3300 D - 6100	13770.00	0.00	287.35	30000.00	626.04	338.69

Section 28

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
172	1967	1.05	A - 4200	2100.00	23220.00	2000.00	22000.00	-1161.90	-3161.90
176	1966	8.32	A - 4500	4740.00	8610.00	569.71	26000.00	2162.26	1592.55
190	1961	.80	A - 7100	1800.00	0.00	2250.00	2500.00	3125.00	875.00
164+165	1963	7.68	A - 7600	5160.00	0.00	671.88	5000.00	651.04	-20.83
184	1963	4.93	A - 5100	4920.00	0.00	997.97	7500.00	1521.30	523.33
181	1966	10.07	A - 5600	5730.00	5250.00	569.02	21000.00	1564.05	995.03
119	1967	.33	A - 4100	1230.00	2850.00	3727.27	6000.00	9545.45	5818.18
118	1967	.42	A - 4200	1650.00	3720.00	3928.57	6200.00	5904.76	1976.19
117	1967	.42	A - 4300	1650.00	3720.00	3928.57	4000.00	666.67	-3261.90
116	1966	1.00	A - 4400	1530.00	2910.00	1530.00	5500.00	2590.00	1060.00

Section 28

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
170	1966	.77	A - 4600	1800.00	16860.00	2325.58	20000.00	4056.85	1731.27
125	1966	8.87	A - 5200				10125.00		
167	1966	1.60	A - 4700				33000.00		
114	1966	3.40	A - 4300				14300.00		
120	1966	.75	A - 4000				30500.00		
159	1964	.54	A - 5600		0.00		5000.00		
159	1965	.54	A - 5600		0.00		9000.00		
159	1966	.54	A - 5600				26000.00		

Section 33

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
207	1964	9.37	A - 6800	3960.00	10140.00	422.63	26500.00	1746.00	1323.37

Section 34

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
258D	1963	.37	A - 4200 D - 4300	1830.00	2880.00	4959.35	4000.00	3035.23	-1924.12
258F	1964	.40	D - 4700 A - 4800	1920.00	7830.00	4752.48	7000.00	-2054.46	-6806.93
258J	1964	.44	D - 5000 A - 5100	1680.00	0.00	3818.18	3000.00	6818.18	3000.00
260	1963	.74	A - 5100 D - 5200	2070.00	6750.00	2797.30	7000.00	337.84	-2459.46
260	1965	.74	A - 5100 D - 5200	2070.00	6750.00	2797.30	7500.00	1013.51	-1783.78
262	1967	1.62	D - 4800 A - 5000	3300.00	3108.00	2037.04	10000.00	4254.32	2217.28

Section 35

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
3	1966	56.87	D - 2500 A - 4000	21420.00	0.00	376.65	102000.00	1793.56	1416.92
4+5	1966	120.00	D - 200 A - 5500	43740.00	13650.00	364.50	209900.00	1635.42	1270.92
8	1964	1.79	D - 2000	4320.00	3300.00	2413.41	5000.00	949.72	-1463.69
10	1966	40.00	D - 3400	15480.00	7200.00	387.00	100000.00	2320.00	1933.00

Section 36

Parcel	Date of Sale	Acreage	Distance to Inter.	Assessed Value		Assessed Land Price/Acre	Sale Price	Sale Land Price/Acre	Land Value Change
				Land	Improve.				
4	1965	.64	D - 5500				14000.00		
4	1967	.64	D - 5500				12600.00		
6	1967	.69	D - 6200	1710.00	16080.00	2481.86	18300.00	3222.06	740.20
8	1964	19.60	D - 7700				62500.00		
9	1964	10.57	D - 6900				13000.00		
10	1963	.50	D - 7300	1320.00	0.00	2640.00	2000.00	4000.00	1360.00
11	1964	.50	D - 7400	1320.00	0.00	2640.00	2000.00	4000.00	1360.00
2	1957	.73					1000.00		
3	1956	2.03					2000.00		
11	1960	.56	D - 7000				1500.00		

APPENDIX B - CASE STUDIES

CASE STUDY 1

Location

The subject property is located on Lafayette Road northwest of Indianapolis, Indiana. It is located 1200 feet south of the interchange with Interstate 65 (see attached illustration).

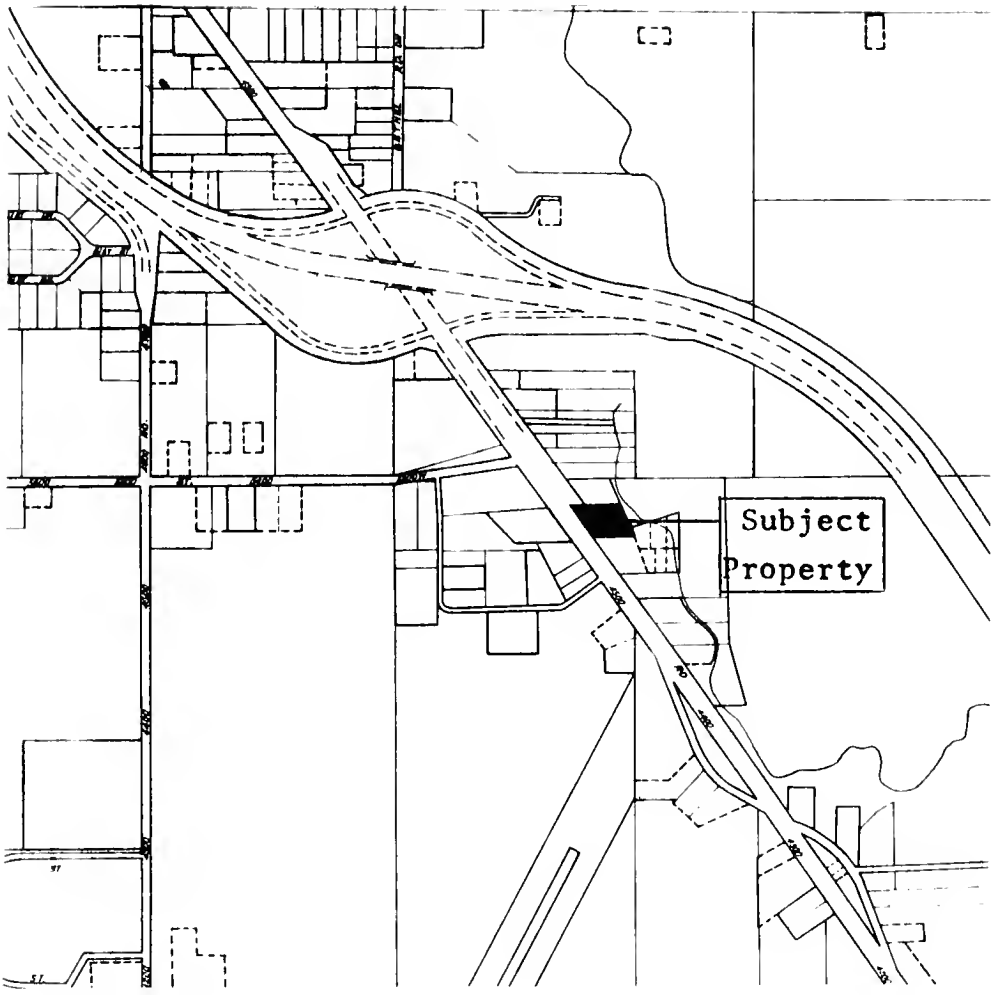
"Before" Data

The property was being used as a residence. The improvement was located on a 1.10 acre lot. The assessed values of the property were $3,570 for the land and $8,670 for the improvement.

"After" Data

In 1964, the property and improvements were purchased by an oil company. The sale price was $47,500. Because of the proximity of this property to the interchange, the oil company was willing to pay this high price. With the construction of a service station, the company felt that a profit could be made due to its ideal location.

Assuming that $8,670 of the selling price was for the improvement, which would be torn down, the value of this land would be $38,830 or $35,300 per acre. This is an increase in land value of $32,054.55 per acre. This type of increase did not happen often in this study area.



LOCATION OF CASE STUDY 1 PROPERTY

CASE STUDY 2

Location

The subject property is located on Lafayette Road northwest of Indianapolis, Indiana. It is located just north of the interchange of Interstate 65 and Interstate 465 (see attachment).

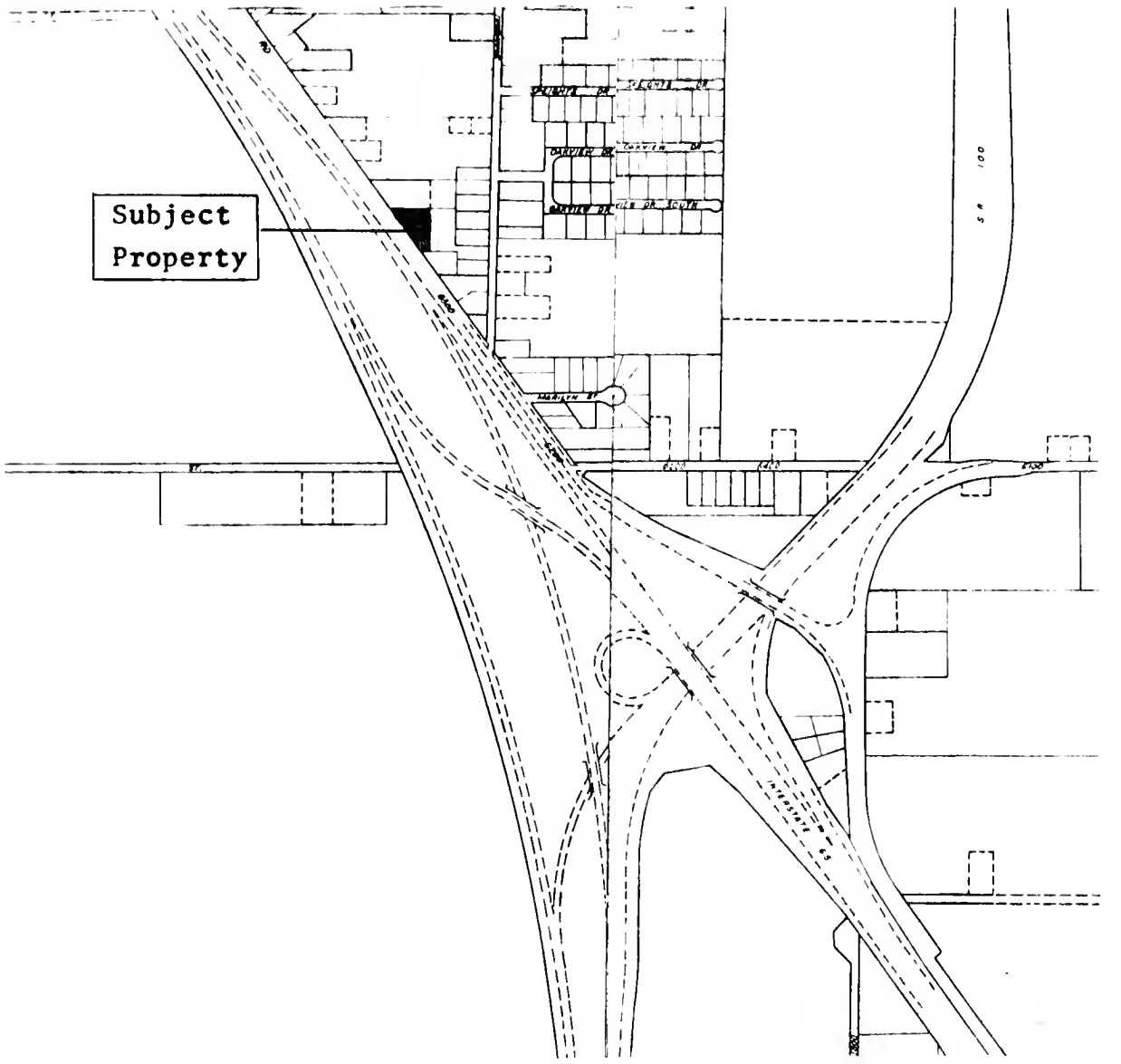
"Before" Data

The property was being used as a residence before the construction of the Interstates. The improvement was located on a .74 acre lot. The assessed values of the property were $2,070 for the land and $6,750 for the improvement.

"After" Data

In 1963 the property was sold for $7,000. This value is less than the assessed value due to the Interstate being built across the street from the home. The Interstate has had a nuisance effect on the property.

By the method of analysis used, the sale price of the improvement was still $6,750. This means that the land is now worth only $250. This amounts to a loss in land value of $1820 or $2,459.46 per acre.



LOCATION OF CASE STUDY 2 PROPERTY

CASE STUDY 3

Location

The subject property is located on 71st Street northwest of Indianapolis, Indiana. The property is adjacent to two sides of the interchange of Interstate 465 and 71st Street (see attachment).

"Before" Data

The property was being used as a farm for income. The two parcels made up 120.0 acres. The assessed values of the property were $43,740 for the land and $13,650 for the improvements.

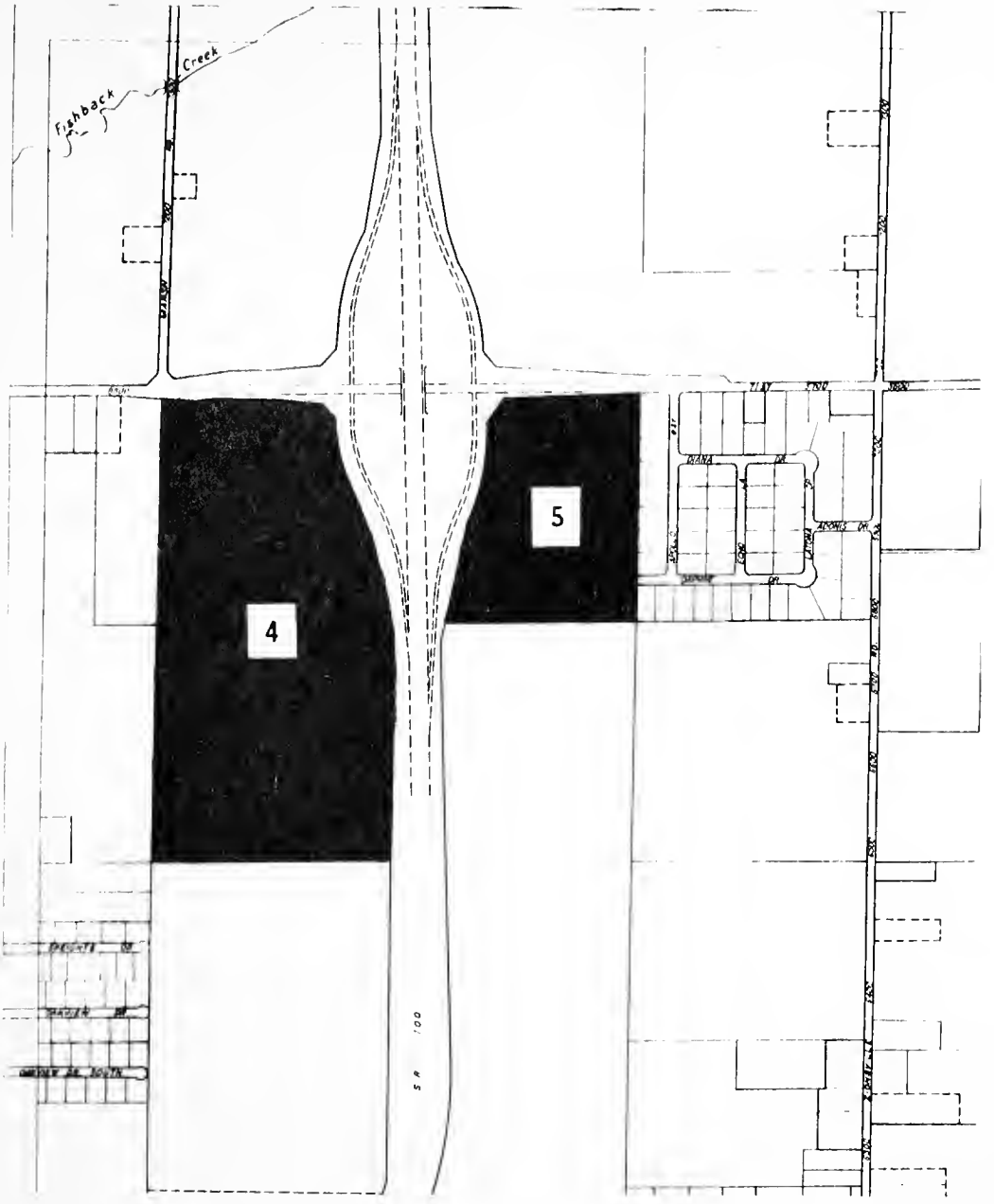
"After" Data

In 1966 one of the major banks of Indianapolis bought the property for $209,900. At the time of the sale, Interstate 465 was just being built and was not completed for almost two more years.

Parcel 5 had been recently rezoned to C1 or Office District. The northern part of Parcel 4 had also been rezoned to C6 or Thoroughfare Service District. The rest of Parcel 4 was zoned for dwelling units.

It is obvious from the purchaser of the land, the high price of the land, and the zoning of the land that this was a speculative purchase. This is substantiated by the fact that no construction had been started within five years of the sale. This bank had also purchased several other large parcels of land near this interchange.

Assuming that $13,650 of the sale price was for the improvements, there was an increase in land value of $152,510 or $1,270.92 per acre.



LOCATION OF CASE STUDY 3 PROPERTY